



Literature review: Assessing the success factors of Hospital Management Information System (HMIS) implementation using the HOT-FIT method in Indonesia

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Abstract

The hospital management information system (HMIS) is an integrated information and communication system designed to manage all service processes within a hospital, contributing to accurate and timely information provision and overall healthcare management. This study aims to conduct a literature review to identify the influential factors in the successful implementation of the HMIS using the HOT-Fit method delineated by several indicators. Data collection was carried out through secondary data from previously conducted research. A total of 12 journals from the period 2021-2023 were analyzed. The results indicate that the human factors influencing the successful HMIS implementation are user satisfaction and system utilization. Organizational factors include top management support, staff capability, work environment, organizational structure, project management, and facility conditions. Technological factors comprise system quality, information quality, service quality, and vendor support. Measures to improve HMIS implementation success may include system user training, enhancement of HMIS supporting infrastructure, periodic HMIS performance evaluation, and technology quality improvement for optimal results.

Keywords: Success factors, HMIS implementation, HOT-Fit method.

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1. Introduction

The World Health Organization (WHO), a leading international health body, emphasizes the significance of e-health services in the healthcare sector and urges countries to plan and execute proper implementation strategies. In 2005, it was addressed in WHA Resolution No. 58.28, asserting that e-health represents a rapidly advancing field that combines medical informatics, public health, and business principles. In this context, e-health services enhance accessibility, improve the quality of healthcare services, expedite diagnosis and treatment processes, and contribute to overall efficiency and cost savings. As such, the WHO encourages nations to embrace technology and innovation in healthcare services, improve human resources capacity, enhance supportive information technology infrastructure, and coordinate requisite efforts to bolster e-health services.

E-health signifies the utilization of Information and Communication Technology (ICT) tools and applications in exchanging information and facilitating communication in healthcare services. This broadens access to and expedites the processing of health information. Effective healthcare services must meet fundamental requirements such as sustainability, acceptability, accessibility, and quality. These services encompass stages from registration, data collection, examination, treatment, outpatient care, to inpatient care. Leveraging technology in healthcare allows patients to readily access health information, thereby ensuring more efficient and superior treatment.

The Hospital Management Information System (HMIS) is a critical tool in managing hospital operations that cannot be overlooked. It facilitates communication and an information technology system that processes and merges all service activities in a hospital using reporting mechanisms, administrative procedures, and coordination networks. The vast and complex task of hospital data compilation involves managing patient medical data and other administrative data. If managed conventionally without HMIS, several negative impacts may arise, including data redundancy, unintegrated data, out-of-date information, and human errors. These could cause inefficiencies and material losses for the hospital (Handiwidjojo, 2017; Septiyani & Sulistiadi, 2022).

With the role of HMIS, these shortcomings can be mitigated or even eliminated. HMIS allows care units to concentrate on delivering professional medical services/care, while finance units handle billing functions. Directors are also tasked with providing identical incentives to medical personnel performing similar tasks, ensuring fair treatment of patients without considering their financial capabilities. This approach has been proven to improve the performance of medical staff and overall hospital service quality (Nurkholis & Saputra 2021; Wijayanta, 2022; Pujihastuti, 2021).

Critical components in the implementation of HMIS include human resources, hardware, software, data, and network. The use of human resources in running HMIS significantly influences the success of this new technology. The adoption process in HMIS usage is influenced by human behavior which can affect the smooth implementation of HMIS. HMIS studies will utilize the HOT-Fit framework as the theoretical model for evaluating information systems in healthcare. The HOT-Fit theory targets core components in the information system: Human, Organization, Technology, and the degree of fit among them. This theory was introduced by Yusof and his colleagues in the 39th Hawaii International Conference on System Sciences in 2006 as an evaluative framework for healthcare information systems (Yusof, 2006). In the competitive business environment of the healthcare sector, the presence of HMIS is crucial for hospitals. The advent of HMIS allows hospitals to enhance operational efficiency, reduce errors in patient data management, assist in improving the accuracy of medical diagnoses and treatments, and expedite service processes. All of these contribute to increased patient

satisfaction and a competitive edge in the healthcare sector. The management information system comprises computerized procedures that aid management in processing data and information integratively with manual or other procedures to produce timely and effective information. The primary objective of the management information system is to support the management decision-making process by providing accurate and current information on organizational performance in financial, operational, and customer service aspects. The management information system can be employed in various types of organizations, including hospitals, to optimize operations and improve overall performance.

The aforementioned HOT-Fit framework serves as an instrumental analytical lens through which we plan to assess the efficiency and effectiveness of HMIS implementation within a healthcare environment. It is anticipated that a comprehensive exploration of the HOT-Fit model in relation to HMIS will provide insights into the interplay of human behavior, organizational structures, and technological advancements within a health care setting.

Human behavior, as examined through the HOT-Fit framework, offers an understanding of how the attitudes and practices of healthcare professionals influence the successful implementation of HMIS. It considers the level of technical proficiency, openness to change, and the users' perceived ease of use and utility of the system.

The organizational facet of the HOT-Fit framework refers to the organizational culture, policies, and strategies that are employed within the healthcare institution. It also includes the roles of leadership and administrative support in promoting and facilitating the use of HMIS. A review of these aspects is necessary to ascertain how they align with or hinder the implementation of HMIS.

Finally, the technology aspect of the HOT-Fit framework focuses on the hardware, software, data management, and networking components of HMIS. It explores how these technological facets contribute to or impede the smooth operation of the system.

Our study aims to scrutinize these aspects within the scope of a literature review to illuminate the factors that contribute to the successful implementation of HMIS. It is our hope that our study will provide valuable insights that can be used to guide future strategies for implementing and improving HMIS in healthcare settings. Authors seek to fill a gap in the existing literature and contribute new knowledge to the field of health informatics, particularly concerning the adoption and use of HMIS in healthcare institutions. Authors anticipate that our findings will have important implications for healthcare providers, policymakers, and information system developers aiming to enhance the effectiveness and efficiency of healthcare services through the adoption of HMIS.

2. Methodology

This study utilizes the principles of a systematic literature review with the objective of examining several scholarly articles, synthesizing the results, and drawing conclusions about the evaluation of success factors in the implementation of the Hospital Management Information System (HMIS) using the HOT-Fit method. Herein, we describe the stages of the research to be conducted.

2.1. Research Objectives

The aim of this study is to carry out a literature review to identify the influential factors in the successful implementation of the HMIS using the HOT-Fit method, as formulated through several indicators. This objective, once achieved, should provide insight into the issues concerning the high success rate of information system implementation in hospitals.

2.2. Research Questions

To achieve the outlined research objective, several research questions (RQ) were formulated:

RQ1: "What are the success indicators of the Hospital Management Information System (HMIS) in the human factor?"

RQ2: "What are the success indicators of the Hospital Management Information System (HMIS) in the organizational factor?"

RQ3: "What are the success indicators of the Hospital Management Information System (HMIS) in the technological factor?"

Success indicators will serve as tangible tools to measure or evaluate the success of the information management system. They will be used as a reference for formulating questionnaires, conducting interviews, and observations to collect data for measuring or evaluating success factors. By using these indicators, the success factors can be comprehensively assessed.

2.3. Literature Search

To find literature relevant to the research objective and questions, we conducted a search via Google Scholar, using a database of journals and research articles. The keywords used for searching within titles and abstracts were "SIMRS Hot-Fit Method", and "health management information system". During the literature search process, we limited the publication years between 2019 and 2023. Subsequently, we downloaded the journals and articles found from the Google Scholar database. A total of 189 files were successfully downloaded, as shown in Table 1.

Table 1. Search results for journals and articles

Database Google Scholar (Year)	Total Article
2021	68
2022	104
2023	17
Total	189

2.4. Literature Selection

After completing the search and collection phase of journals and articles, the next step is to select the literature in line with the predefined inclusion and exclusion criteria. This process will enable the filtering of relevant information and the discarding of information not pertinent to the research topic. Hence, the selected literature will be more focused and capable of contributing more significantly to the research findings discussion.

Inclusion criteria:

- The research uses hospitals as the subject, including both public and private hospitals in Indonesia.
- The research declares factors of failure as well as the success of the information system.
- The research uses the Indonesian language.

Exclusion criteria:

- Research in the form of final assignments, theses, or dissertations that have not been published.
- Research that does not declare factors of failure or success of the information system.

Table 2. Results of sorting journals and articles

Data Base Google Scholar	Jumlah Berkas
2021	2
2022	9
2023	1
Total	12

2.5. Analysis

The analysis process is implemented by summarizing and formulating the results from the literature related to the success factors of the information system. Subsequently, these summaries are divided into various factors, each with their indicators.

3. Results

Study Pratama et al. (2022) by a team of researchers analyzed the factors influencing the acceptance of the SIMRS at Sakinah Mojokerto Hospital. Using quantitative research methods and a sample of 147 respondents, they found a significant correlation between the HOT Fit model on the Technology Acceptance Model (TAM) and several other variables.

Research Hadikasari et al. (2022), adopting a similar quantitative approach with 108 respondents, examined the impact of system quality on the use of the SIMRS at the 'Aisyiyah Siti Fatimah Tulangan Sidoarjo Hospital. They found a significant influence between the system quality and its usage.

In a similar vein, research Hasanah et al. (2022) quantitatively investigated the influence of human, organization, and technology factors on the benefits of the SIMRS at ASY-Syifa' Sambi Hospital with 144 respondents. They discovered these factors significantly impacted the benefits of the SIMRS.

Study Nastiti & Santoso (2022) evaluated the implementation of SIMRS at RSUD SLG Kediri Hospital, utilizing a quantitative method with 54 respondents. The highest satisfaction percentage occurred on the system use variable (71.79%), while the highest dissatisfaction was on the vendor support variable (26.28%).

The researchers of study Eritan et al. (2022) conducted a qualitative review of medical record management at Soeprapto Special Psychiatric Hospital in Bengkulu with 13 respondents. They concluded that human resources knowledgeable in IT are needed, and routine evaluations of the SIMRS management are necessary.

The evaluation of the SIMRS using the HOT-Fit method at Mangusada District Hospital in study Wirajaya & Nugraha (2022) found high satisfaction levels in the human, organization, and technology components based on the assessments of 110 respondents.

Study Suryana et al. (2021) presented a model to enhance the utilization of the SIMRS based on the HOT-Fit method at RSPI Prof. Dr. Sulianti Saroso Hospital. Involving 154 respondents, the research revealed a significant influence of three factors accounting for 80.9% of the effect. Individually, these three factors influenced the Benefit, with the Regulation variable having the most significant impact.

Research Putri & Fitriani (2022) conducted at RSUD Pariaman examined the HOT-Fit Model in the SIMRS. Employing qualitative methods and a sample of 7 respondents, the study found a matching factor between human, organization, and technology elements in generating the net benefit of the hospital.

Study Aprilianingsih et al. (2022) evaluated the SIMRS for outpatient registration using the HOT-Fit method at a private hospital in Metro in 2022. This qualitative research involving 12

respondents highlighted the vital role of the three components (human, organization, and technology) in the system evaluation.

Research Nolandari & Fitriani (2022) evaluated the SIMRS for outpatient care at Dr. Reksodiwiry Hospital using the HOT-Fit method. The qualitative study with 4 respondents found a lack of skilled staff and absence of specialized IT training, as well as insufficient management support, impacting the SIMRS performance.

Study Oktaviana et al. (2022) evaluated the SIMRS at RSUD Gambiran Kediri Hospital using the HOT-Fit framework. The research suggested that the hospital needs to enhance and update its information system to meet future needs and provide optimal services to patients.

Lastly, research Olivia et al. (2022) evaluated the implementation of the SIMRS at Sanggau District General Hospital in West Kalimantan using the HOT-Fit model. It was found that 64% of the respondents rated the "Human" variable as good, 56% rated the "Organization" as good, and 60% rated the "Technology" as good. The quantitative study involved 25 respondents.

This review of the literature provides valuable insights into the key factors that contribute to the successful implementation and management of SIMRS in various hospitals. The lessons learned from these studies can be instrumental in shaping future implementations of SIMRS.

Table 3. Information system success factors

Factors	Success Factors
Human	System Use [Pratama et al. (2022); Hadikasari et al. (2022); Hasanah et al. (2022); Nastiti & Santoso (2022); Eritan et al. (2022) Aprilianingsih et al. (2022); Nolandari & Fitriani (2022); Oktaviana et al. (2022); Roaini & Rohmadi (2022); Olivia et al. (2022)]. User Satisfaction [Pratama et al. (2022); Nastiti & Santoso (2022); Eritan et al. (2022); Oktaviana et al. (2022); Roaini & Rohmadi (2022)].
Organization	Top Management Support [Pratama et al. (2022); Hasanah et al. (2022); Nastiti & Santoso (2022); Eritan et al. (2022); Aprilianingsih et al. (2022); Nolandari & Fitriani (2022); Oktaviana et al. (2022); Roaini & Rohmadi (2022)]. IT Capability Of Staff [Nastiti & Santoso (2022); Eritan et al. (2022); Aprilianingsih et al. (2022); Nolandari & Fitriani (2022); Olivia et al. (2022)]. Work Environment [Wirajaya & Nugraha (2022); Oktaviana et al. (2022); Roaini & Rohmadi (2022)]. Organizational Structure [Wirajaya & Nugraha (2022); Roaini & Rohmadi (2022)]. Project Management [Pratama et al. (2022); Roaini & Rohmadi (2022)]. Facility Conditions [Roaini & Rohmadi (2022); Olivia et al. (2022)].
Technology	System Quality [Pratama et al. (2022); Hadikasari et al. (2022); Hasanah et al. (2022); Nastiti & Santoso (2022); Eritan et al. (2022); Wirajaya & Nugraha (2022); Aprilianingsih et al. (2022); Nolandari & Fitriani (2022); Oktaviana et al. (2022); Roaini & Rohmadi (2022); Olivia et al. (2022)]. Service Quality [Pratama et al. (2022); Hasanah et al. (2022); Eritan et al. (2022); Wirajaya & Nugraha (2022); Nolandari & Fitriani (2022); Oktaviana et al. (2022); Roaini & Rohmadi (2022)] Information Quality [Pratama et al. (2022); Nastiti & Santoso (2022); Eritan et al. (2022); Wirajaya & Nugraha (2022); Oktaviana et al. (2022) Roaini & Rohmadi (2022)] Vendor Support Roaini & Rohmadi (2022)

Table 3 presents the factors identified as contributing to the success of the SIMRS across the analyzed literature. Under the human factor, system use and user satisfaction were common indicators of success across multiple studies. The organization factor was found to be influenced

by top management support, staff IT capability, work environment, organizational structure, project management, and facility conditions. Finally, the technology factor was determined by system quality, service quality, information quality, and vendor support. These indicators provide a comprehensive perspective on the determinants of successful implementation and usage of the SIMRS.

Factors Influencing the Successful Implementation of Hospital Information Management Systems (SIMRS): The Human Element

This factor involves human aspects, both in technical execution and in system use. Based on the research findings, Human Resources (HR) play a crucial role within this human factor. An information system requires skilled and trained HR both as administrators and users, as humans have an integral role in any information system. The referenced HR must possess sufficient capacity to adapt to the rapidly evolving technology landscape. Consequently, organizations must continually enhance their HR capacity to meet the demands of ever-advancing technology. The following are some indicators for gauging the successful implementation of SIMRS in relation to the human factor:

System Use; The use of the Hospital Information Management System (SIMRS) essentially assists in delivering hospital services. Regular use of this system in daily activities familiarizes the users and makes its operation easier. System Use in SIMRS pertains to how the system is employed by the users, such as doctors, nurses, and administrative staff in the hospital. It is crucial for SIMRS users to understand how to use the system effectively and efficiently. This can aid them in performing their daily tasks more easily and enhance the quality of service provided to patients. In a successful SIMRS implementation, system use encompasses ease in seeking information and support in various critical activities in every hospital service process. To attain optimal benefits, hospitals need to improve the quality of their systems (Dewi et al., 2021).

User Satisfaction; The implementation of SIMRS has aided in managing hospital information more easily. Even though initial usage may present challenges, with training, users can understand and be satisfied with the operation of SIMRS. This is due to SIMRS providing useful tools for daily activities, such as time efficiency in searching for patient information. The existence of this system also eases the efficient and accurate management of patient data. Therefore, the application of SIMRS is vital in hospital services (Dewi et al., 2021). SIMRS users will be satisfied with its implementation if the application display is understandable, the system is easy to use, and the available features and facilities meet the required needs. Additionally, the data obtained from the system must be accurate and beneficial in the decision-making process. All these factors are vital in ensuring user satisfaction in SIMRS usage. By meeting these factors, users will feel supported, and the hospital service process will become more effective and efficient.

Organizational Factors Influencing the Successful Implementation of SIMRS

Organizational factors pertain to elements related to the structure, culture, and policies of an organization which can affect the success of an information system implementation, particularly dependent on organizational aspects in both public and private hospitals in Indonesia. Activities within a hospital are highly structured, hence the success of the information system is significantly influenced by the vision, mission, and strategic direction of top management. The following six indicators are used to measure the success of SIMRS implementation based on organizational factors:

Top Management Support; There exists a deficit in the form of commitment from leadership towards SIMRS implementation that is yet to be optimal. Leaders have not taken concrete steps in forming policies and rules that regulate SIMRS use. This can affect the successful implementation of SIMRS as without robust support and commitment from leadership, the utilization of SIMRS can become less structured and inappropriate for the existing organizational needs. Therefore, it is crucial for leaders to prioritize SIMRS implementation and ensure the presence of clear policies and guidelines for its use in hospitals.

In order to enhance the success of Information Technology (IT) adoption, it is imperative for institutions to study summary information about the background and objectives of employees and middle-level managers. Consequently, hospitals can strengthen top-level management to improve performance and increase the success of IT adoption. This is due to top management's critical role in shaping strategies and policies related to IT use, thus effective strategies and policies can assist in increasing the effectiveness and efficiency of IT use. Therefore, institutions must ensure that top management possesses the appropriate profile, vision, mission, and adequate managerial skills to support successful IT use.

Leadership or top management plays a pivotal role in SIMRS implementation as their support can influence the successful usage of the system. The support provided by leadership includes: backing the implementation of SIMRS, advocating the use of SIMRS, and viewing SIMRS as an essential and beneficial element for the hospital. With this support, it is hoped that the use of SIMRS can be well-integrated within the hospital to improve the quality of healthcare services provided. Thus, efforts must be made to ensure that leadership or top management has an adequate understanding of the benefits and importance of SIMRS usage in hospital activities, so they can provide strong support and motivate optimal use of SIMRS.

IT Capability Of Staff; The capability of IT staff is a key factor in successful SIMRS implementation. First, the ability of IT staff to understand the needs of SIMRS users, such as doctors, nurses, and administrative personnel, plays a vital role in ensuring that SIMRS is applied based on their needs. This will ensure that the implemented SIMRS is easier to use and more effective in optimizing hospital operations. Second, the ability of IT staff to design and develop an efficient and user-friendly SIMRS system is essential. They must be able to design a system capable of processing data efficiently and at high speed and that can be easily accessed by users. Third, the ability of IT staff to provide user training on the SIMRS system is crucial to ensure users have a good understanding of how to use the system. Effective training will assist users in maximizing the features of SIMRS and optimizing hospital operations. Lastly, the ability of IT staff to maintain the SIMRS system is critical in ensuring the system remains optimally functional and satisfies user needs. They must be able to resolve technical problems and system issues promptly to keep the system running efficiently.

Work Environment; The organizational environment encompasses external factors that influence an organization, such as political conditions, government policies, financial resources from capital owners, location, competition, inter-agency relationships, the population served, and communication. To succeed in implementing SIMRS, organizations need to adopt effective strategies and management, such as leadership support, teamwork, and good communication. Moreover, involving employees with the right skills and roles can also contribute to achieving success within the organizational environment. The organizational environment in SIMRS implementation includes external factors affecting the organization, such as funding sources, government policies, political conditions, competition, interorganizational relations, and communication. As SIMRS requires assistance and involvement from various diverse stakeholders, including capital owners, government, patients, and medical staff, these environmental factors can influence the success of SIMRS implementation. Therefore, effective

strategies and management, including support from leaders, solid teamwork, and good communication among relevant parties, are necessary to achieve successful SIMRS implementation in a dynamic organizational environment.

Organizational Structure; The organizational structure is a key determinant of an organization's effectiveness. Therefore, the selection of the appropriate organizational structure is crucial to efficiently and effectively achieving organizational goals. The organizational structure involves various aspects associated with the type of organization, organizational politics, organizational activities, hierarchy, control systems, planning, communication, strategy, and management. In general, the organizational structure reflects the institutional conditions that include culture, politics, hierarchy, autonomy, planning, control systems, strategy, management, leadership, and communication.

Implementing SIMRS in an organization involves various aspects, including methods to improve organizational performance. SIMRS also aids in communicating effectively between different departments and aligning with tasks and functions present in the organization. Furthermore, infrastructure and facilities support should also be provided by the organization to maximize SIMRS use.

Project Management; Project management involves support from the management department in operating SIMRS and staff in understanding the difference in work activities from using conventional methods like paper records to SIMRS. The management department also needs to prepare supporting facilities and resources required for SIMRS implementation. In implementing SIMRS, it is essential to involve all parties and ensure employees can accept the required work culture change for the new system's use. Project management can assist in ensuring that all stages of SIMRS implementation are carried out effectively and efficiently.

The use of SIMRS is supported by management through financial support. The adoption of this information system is also propelled by the activeness of medical staff in using SIMRS. Additionally, staff solidarity, empathy among coworkers, and systematic operation of SIMRS also serve as supporting factors in the successful operation of SIMRS.

Facility Conditions; The facilities provided by this institution include all resources, means, and infrastructure such as hardware, software, network support facilities, and technical support that greatly assist in using SIMRS. Furthermore, this institution offers learning to users in using SIMRS, and has officers who are responsible and ready to serve if there are problems with SIMRS. Therefore, these facility conditions are crucial in supporting the effective use of SIMRS by medical staff at the institution.

This indicates that the institution should commit to providing an adequate environment for SIMRS users to use the system easily and efficiently. By providing training and technical support, the institution also ensures that SIMRS users possess the knowledge and skills required to maximize the benefits of system use. Moreover, the presence of responsible officers ready to provide assistance helps SIMRS users quickly and effectively overcome problems, thereby minimizing interruptions in healthcare services.

Technological Factors Influencing the Success of SIMRS Implementation

Technology plays an integral role in determining the success or failure of an information system, primarily regarding technical aspects and support means of information and communication technology (ICT). The appropriate use of technology can significantly benefit the information system, but poor management can lead to failure. In the context of SIMRS implementation, the technology dimension is critical. SIMRS requires a reliable and sufficient ICT infrastructure to function effectively. A failure in this regard can disrupt the healthcare services offered by the hospital and impact service quality and patient welfare.

Hence, hospitals must continually ensure the necessary resources and budget allocations are sufficiently available to support a reliable and effective SIMRS ICT infrastructure. Furthermore, regular testing and checks should be carried out to ensure the reliability and security of the SIMRS information system. Here are four indicators to measure the successful implementation of SIMRS on organizational factors:

System Quality; Satisfying user information system quality is vital to provide optimal benefits to SIMRS users in hospitals. An important factor influencing system quality is ease of use or "ease of use". The ease of using the SIMRS information system makes users more efficient in using the system, thus enhancing the acceptance and use of SIMRS in hospitals. With the increase in SIMRS use, the efficiency and effectiveness of the health services provided will improve. Information system quality can be measured through several aspects, including ease of use, easy to learn, response time, usability, availability, flexibility, and security. Moreover, system quality is also associated with features within the system, including system performance and user interface (Setiorini et al., 2021).

Service Quality; The overall service quality measurement in the context of system or technology service provider support can be done. Several characteristics can be assessed, such as the ability to respond quickly, service guarantee, the ability to understand users, and the process of service actions. A good user experience regarding vendor service is crucial, as fast and responsive service will provide the best benefits to the users. In addition, vendors must also guarantee the services and quality provided in operating SIMRS to users. The vendor's ability to solve issues also becomes a critical factor in enhancing user satisfaction. To improve SIMRS service quality, hospitals need to ensure that users have access to clear and easy-to-understand user guides. Furthermore, the hospital should cooperate with the developer to ensure that the services provided are responsive and effective during service hours. This will help ensure that SIMRS users are satisfied and can use the system easily and effectively (Setiorini et al., 2021).

Information Quality; Information Quality or information quality refers to the success of an information system in providing accurate, relevant, timely, and easily understood information by users. Good information quality is essential in the Hospital Information Management System (SIMRS) because the information obtained from SIMRS can influence decisions made by medical staff and hospital management. The role of information quality in SIMRS is to enhance the quality of healthcare services provided by the hospital. With good information quality, accurate medical decisions can be made, patient supervision and management can be done better, and hospital resource management can be more effective. Good information quality can also help the hospital meet regulatory requirements and patient safety standards, as well as improve hospital efficiency and productivity. By ensuring good information quality in SIMRS, the hospital can provide better healthcare services and ensure better patient safety. Good information quality can also help the hospital optimize resources and improve operational efficiency, thus providing significant benefits for the hospital and patients (Setiorini et al., 2021). However, the quality of information can basically be assessed from three main things, namely accuracy, timeliness, and relevance. Accurate information will provide certainty to users in making decisions. Timely information will provide the best benefits to users because it can be used when needed. Whereas relevant information will help users in solving their problems or fulfilling their needs.

Vendor Support; Vendor support refers to the service provided by the vendor to the users of their product or service. In the context of the Hospital Information Management System (SIMRS), vendor support is of utmost importance as SIMRS is a complex information system that requires reliable technical support to ensure its smooth and efficient operation.

Several key factors should be considered when providing vendor support for SIMRS, including (1) Responsiveness: Vendor support should promptly and effectively respond to SIMRS users' requests. They should have a team ready to respond to calls, emails, or technical support tickets from users, (2) Technical competence: Vendor support should have a skilled and trained technical team that can provide accurate and quick solutions to technical problems that arise, (3) System maintenance and updates: Vendor support should perform regular maintenance and system updates for SIMRS. They need to ensure the system is always up-to-date and operating properly.

If all these factors are well-addressed, vendor support can be a contributing factor to the successful implementation and use of SIMRS in hospitals. Users of SIMRS will feel more confident and comfortable using the system, thus enabling them to provide better healthcare services to patients (Molly & Itaar, 2021).

4. Conclusions and Discussion

Our research has effectively elucidated the role that technology factors play in the success or failure of a Hospital Information Management System (SIMRS) implementation. This study's findings align with the existing body of literature, underscoring that technology is indeed integral in the successful implementation of information systems, specifically within the healthcare sector.

The results show the significance of four critical factors: System Quality, Service Quality, Information Quality, and Vendor Support. The quality of a system is established by its ease of use, responsiveness, availability, flexibility, and security, among other parameters. Similarly, service quality, which encapsulates characteristics such as quick response capability, service guarantee, and the capacity to understand the user, contributes to an enhanced user experience. Our findings suggest that these factors significantly influence user satisfaction and the efficient utilization of SIMRS in healthcare facilities, which, in turn, optimizes health service provision. Information quality, referring to the precision, relevance, timeliness, and comprehensibility of the information provided by a system, was also highlighted as essential. As SIMRS delivers information that guides medical and management decision-making, high information quality boosts healthcare service quality and patient safety. Moreover, it aids in resource management and ensures compliance with regulatory requirements and patient safety standards.

Lastly, vendor support surfaced as another crucial determinant of a successful SIMRS implementation. It is vital that vendor support is responsive and technically competent while providing regular system maintenance and updates to ensure the smooth and efficient running of SIMRS.

In conclusion, technology factors, specifically System Quality, Service Quality, Information Quality, and Vendor Support, significantly impact the successful implementation of SIMRS in hospitals. Hence, healthcare facilities must carefully consider these factors when implementing or improving their SIMRS. By focusing on these components, they can ensure that their information systems not only boost efficiency and productivity but also enhance the quality of patient care. This research lays the foundation for further exploration into the intricate role of technology in the healthcare sector and prompts a more comprehensive understanding of the various factors that influence the success of health information systems. It is hoped that such insights will contribute to the evolution of healthcare services and the optimization of patient care and safety.

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